

PhD THESIS DEFENSE

ON THE SPLAT SINGULARITY FOR THE MUSKAT PROBLEM

PLACE: Sala Naranja, ICMAT (Campus de Cantoblanco, Madrid)

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ABSTRACT: This thesis deals with different aspects of the Muskat problem. This problem studies the evolution of the interface between two immiscible fluids of different nature in a porous medium.

We study two different regimes: *homogeneous* and *inhomogeneous*.

For the homogeneous case, namely, the medium has constant permeability; the study of "splat" singularities for the one-phase Muskat problem is carried out (a single fluid in the vacuum is considered).

For the inhomogeneous case, considering the permeability of the medium as a step function; a study of the local existence in Sobolev spaces and finite time singularities of "splash" and "splat" type is performed.











